

EIV

Technical Services, LLC

93 South Main Street
Waterbury, VT 05676
Tel: 802-244-7453
Fax: 802-244-7492

November 2, 1998

**RE: Geoprobe Site Investigation
Dennis Marshall Property
Old School Road, Duxbury, Vermont
EIV Project #E1079 98-2492**

Dear Mr. Marshall and Mr. O'Brian:

EIV Technical Services, LLC was retained by Mr. Dennis Marshall and Mr. & Mrs. O'Brian for the purpose of conducting a limited investigation of subsurface soil and groundwater conditions at Mr. Marshall's property. Eagle Oil owned the property prior to Mr. Marshall, and the site is currently used as a vehicle repair shop.

The property is located on Old School Road in Duxbury, Vermont, approximately 0.2 miles west of Route 100 and is currently serviced by municipal water from the Town of Waterbury. The Winooski River is the northern boundary of the property. Assumed groundwater flow is south to north, towards the river. Three above ground bulk storage tanks owned by Eagle Oil were located on the property within the past 20 years. These tanks were located in the area immediately south of the Winooski River. Two of the tanks were of a welded construction and the remaining tank was riveted. The two welded tanks were relocated to Eagle Oil's property in Waterbury, Vermont. The riveted tank was dismantled. Since Mr. Marshall has owned the property, he has excavated approximately five feet of soil from the area where the tanks were located to level the site. For several years in the 1980's, Mr. Marshall had an additional above ground tank in the same area.

In order to determine the extent of contamination, if any, EIV directed a Geoprobe investigation of the property on October 9, 1998. At the request of the client, EIV performed one-half day of field work. Five soil borings were completed on the property in the area north and east of the existing garage. Two groundwater samples and one soil sample were sent to Endyne of Williston, Vermont for analysis for petroleum constituents. The abandoned water well was not sampled. Refer to the attached map for soil boring locations. HOW ABANDONED?

Field screening for Volatile Organic Compounds (VOCs) was completed during sampling using a Photoionization detector (PID). VOCs were detected in the field in SB-1 at a level of 93 ppmv approximately 14' below ground surface (bgs). A slight petroleum odor was noted in this sample.

Petroleum odor was also noted, with a PID reading of 44 ppmv, in the soil sample taken from the bottom of the floor drain inside the garage. Petroleum contamination was not detected with the PID in any of the samples from the remaining borings. None of the groundwater samples had any odor or sheen. Groundwater samples from SB-1 and SB-5 were sent to the laboratory for analysis along with a sample of the soil from the bottom of the floor drain.

1,2,4-Trimethylbenzene was detected at Trace Below Quantitation Limit (TBQ) in the water sample from SB-1. TBQ indicates that the target parameter was detected but could not be measured due to its low concentration. No other target parameters were detected by EPA Method 8021B in water sample from this location. Total Petroleum Hydrocarbons (TPHs) were detected by Modified EPA Method 8100 in this sample at a level of 0.54 mg/L. No target parameters were detected by EPA Method 8021B or Modified EPA Method 8100 in the groundwater sample from SB-5.

The following parameters were detected in the soil sample from the bottom of the floor drain; Toluene (237 µg/kg), Ethylbenzene (TBQ), Xylenes (644 µg/kg), Trimethylbenzene (1993 µg/kg). Benzene, MTBE and Naphthalene were not detected in this sample. TPHs were detected by Modified EPA Method 8100 in this sample at a level of 32,800 mg/kg.

State and federal regulations require that the Vermont Department of Environmental Conservation (VTDEC) be notified of the release of a regulated substance into the environment. The Sites Management Section (SMS) of the VTDEC has guidance criteria of 20 ppmv (gasoline) or 10 ppmv (fuel oil) detected in the soil to list a property as a hazardous waste site. There are no specific regulatory levels for TPHs in groundwater. Further characterization of a site that shows the limits of contamination are reasonably defined and that the site has no other issues typically results in the site qualifying for a Site Management Activities Completed (SMAC) designation.

Although petroleum constituents have been identified in the soil at two on-site locations, the low level of impact to groundwater will most likely qualify this site for SMAC status. This would mean that no further work would be required at the site.

The petroleum levels in the garage drain are of concern, however, field and analytical results indicate that soil and groundwater have not been significantly impacted. Based on the data obtained during our investigation and detailed above, EIV believes that the site is low-risk for environmental concerns regarding petroleum storage. However, we recommend that soils in the bottom of the drain be removed and disposed of properly. At that time the drain sump should be inspected and re-constructed if necessary, to ensure future use will not result in any contaminant release to the environment.

Enclosed please find a copy of this report to for forwarding to the SMS. If you have any questions, please feel free to contact us.

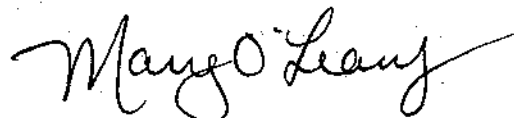
Sincerely,
EIV Technical Services, LLC



Bill Lammer
Environmental Engineer

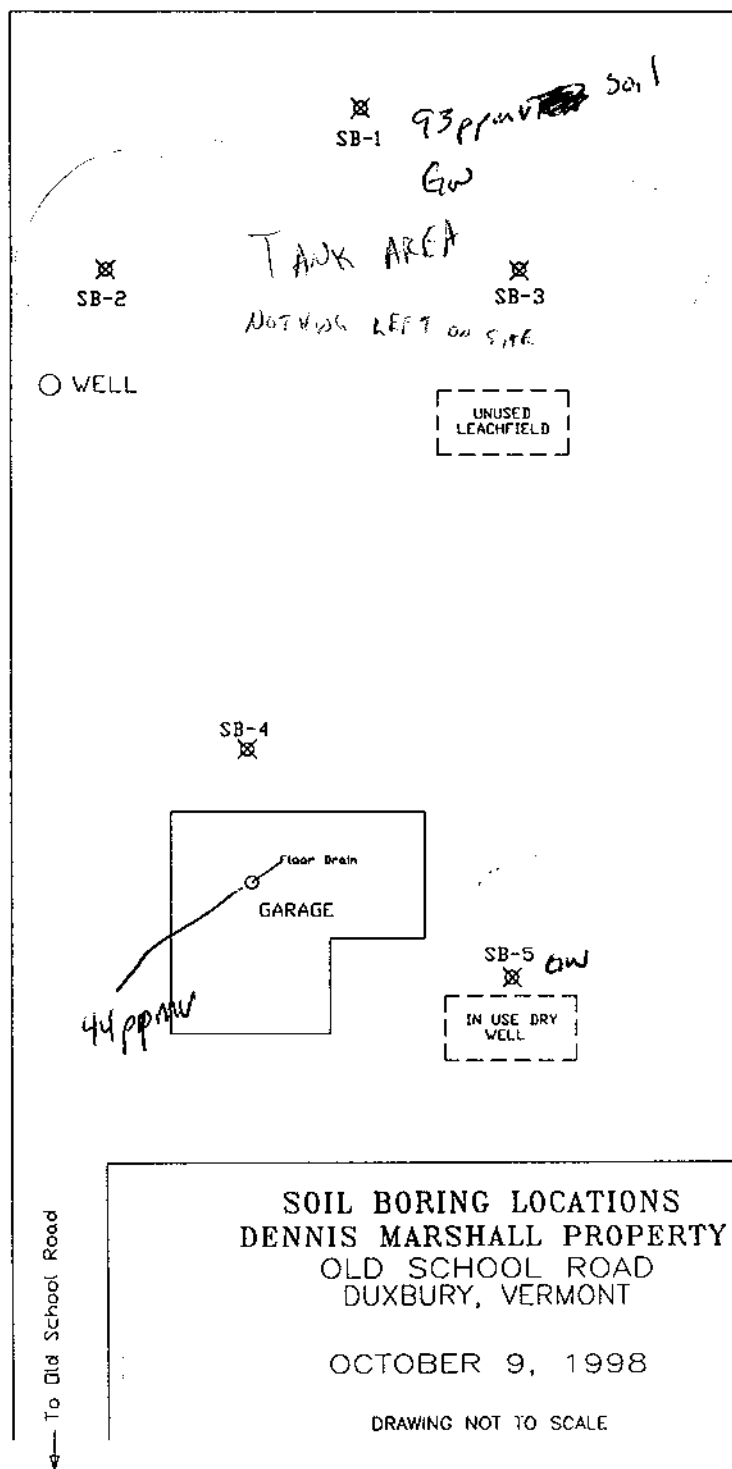
Attachments

Reviewed,
EIV Technical Services, LLC



Mary O'Leary
President/Hydrogeologist

WINDOSKI RIVER



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93 SOUTH MAIN ST.
WATERBURY, VT 05676

SOIL BORING LOG

PROJECT NAME: Dennis Marshall Property

PROJECT #: E1079

ADDRESS: Old School Road, Duxbury, Vermont

BORING #: SB-1

DATE COMPLETED: October 9, 1998

SUPERVISED BY: Bill Lammer

BORING COMPLETED BY: Twin State Env. Co., Richmond, VT

METHOD: Geoprobe

DEPTH (ft below grade)	SAMPLES					SOIL DESCRIPTION	REMARKS
	No.	Reco- very (ft)	Blow per 6 in	Time	HNU/ OVA (ppmv)		
0	S-1	2.5'	NA	845		0-1' loose gravel	No Staining. No odor. Dry.
1						fine SAND w/ some SILT changing to medium loose tan SAND	
2							
3							
4	S-2	3.5'	NA			4" coarse brown SAND mixing w/ fine GRAVEL..	PID @ 5"
5					0.0	remainder coarse SAND w/ fine to medium GRAVEL.	
6							
7					0.0	½" lense black GRAVEL	
8	S-3	3'	NA			coarse SAND with medium GRAVEL.	PID @ 7' No odor. No Sheen.
9							
10							
11					85	black lense @ 12' -	
12	S-4	3.5'	NA			medium SAND w/GRAVEL.	PID @ 12' No sheen. Slight Petro odor.
13							
14					93	4" black lense	
15							
16							H2O @ 14'
17							
18							
19							
20							
21							
22							

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SOIL BORING LOG

PROJECT NAME: Dennis Marshall Property PROJECT #: E1079
 ADDRESS: Old School Road, Duxbury, Vermont BORING #: SB-2
 DATE COMPLETED: October 9, 1998 SUPERVISED BY: Bill Lammer
 BORING COMPLETED BY: Twin State Env. Co., Richmond, VT METHOD: Geoprobe

DEPTH (ft below grade)	SAMPLES					SOIL DESCRIPTION	REMARKS
	No.	Reco- very (ft)	Blow per 6 in	Time	HNU/ OVA (ppmv)		
0	S-1	2.5	NA	945	0	4" organic w/ medium GRAVEL. remainder fine/medium grey SILTY SAND	PID @ 2.5'
1							
2							
3							
4	S-2	3	NA		0	8" grey medium SAND 1.5' medium tan SAND remainder fine gravel with some coarse tan SAND	PID @ 5'
5							
6							
7							
8	S-3	4'			2	8' - 8.5' coarse SAND 8.5' - 9' white fine GRAVEL 9' - 11' medium GRAVEL and tan coarse SAND	PID @ 9.5'
9							
10							
11							
12					0.0	11' - 12' medium tan SAND	PID @ 11' H2O @ 11.5'
13							
14							
15							
16							
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18							
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SOIL BORING LOG

PROJECT NAME: Dennis Marshall Property

PROJECT #: E1079

ADDRESS: Old School Road, Duxbury, Vermont

BORING #: SB-3

DATE COMPLETED: October 9, 1998

SUPERVISED BY: Bill Lammer

BORING COMPLETED BY: Twin State Env. Co., Richmond, VT

METHOD: Geoprobe

DEPTH (ft below grade)	SAMPLES					SOIL DESCRIPTION	REMARKS
	No.	Reco- very (ft)	Blow per 6 in	Time	HNU/ OVA (ppmv)		
0	S-1	3.5	NA	1100	0.0	0 - 6' organic	PID @ 3.5'
1						6 - 10" medium GRAVEL	
2						10" - 4' medium/fine SAND w/ little medium GRAVEL	
3							
4	S-2	2.5	NA			4' - 7' coarse brown SAND	No odor.
5							
6							
7						7'-8' medium GRAVEL w/ some coarse SAND	
8	S-3	4'	NA		0.0	medium/coarse GRAVEL	PID @ 11' H2O @ 11'
9							
10							
11							
12							
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SOIL BORING LOG

PROJECT NAME: Dennis Marshall Property

PROJECT #: E1079

ADDRESS: Old School Road, Duxbury, Vermont

BORING #: SB-4

DATE COMPLETED: October 9, 1998

SUPERVISED BY: Bill Lammer

BORING COMPLETED BY: Twin State Env. Co., Richmond, VT

METHOD: Geoprobe

DEPTH (ft below grade)	SAMPLES					SOIL DESCRIPTION	REMARKS
	No.	Reco- very (ft)	Blow per 6 in	Time	HNU/ OVA (ppmv)		
0	S-1	3.5	NA	1145		4" gravel parking lot mat'l 4" - 1' med GRAVEL w/grey SAND 1' - 4' medium tan loose SAND	
1							
2							
3					0.0		PID @ 3.5' No odor.
4	S-2	4'	NA			4' - 6' medium grey/tan SAND	
5							
6					0	6' - 6.25' grey SILT lense 6.25' - 8.0' loose coarse SAND w/ fine GRAVEL	PID @ 6.25' No odor.
7							
8	S-3	1'	NA			fine GRAVEL	
9							
10							
11						11.5 - 12' medium GRAVEL w/ SAND	H2O @ 11.5'
12	S-4		NA			GRAVEL turning to coarse SAND	
13					0		PID @ 13'
14							
15							
16							
17							
18							
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22							

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SOIL BORING LOG

PROJECT NAME: Dennis Marshall Property PROJECT #: E1079
 ADDRESS: Old School Road, Duxbury, Vermont BORING #: SB-5
 DATE COMPLETED: October 9, 1998 SUPERVISED BY: Bill Lammer
 BORING COMPLETED BY: Twin State Env. Co. Richmond, VT METHOD: Geoprobe

DEPTH (ft below grade)	SAMPLES					SOIL DESCRIPTION	REMARKS
	No.	Reco- very (ft)	Blow per 6 in	Time	HNU/ OVA (ppmv)		
0	S-1	4	NA	1245		0 - 1' GRAVEL/SAND	
1						1' - 3.5' coarse grey loose SAND	
2							
3	S-2	4'	NA		0	3.5' - 4' increasing GRAVEL	PID @ 3.5'
4						GRAVEL/ SAND	
5							
6	S-3	4'	NA		0		PID @ 5.5'
7							
8						GRAVEL/ SAND	
9					0		PID @ 7.5'
10							
11							
12					0	brown/black lense	H2O @ 11.5' PID @ 11.5' No odor.
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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